Mountain roads as heritage objects: towards a typology of heritage status development processes

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Abstract: Examination of the historical and socio-cultural processes involved in establishing mountain roads as heritage objects suggests that heritage development situations can be modeled in terms of 4 major categories (labeled A, B, C and D). The resulting typology is presented in conjunction with a number of interpretative keys that can be used to define a road’s heritage development status and it is illustrated by examples from the Alps, the Himalayas and the Andes. A road’s heritage status is generally related to its specific historical and/or physical characteristics. The model presented here can be used to analyze the evolution of this status over different scales of time and space. This article concentrates on the history and tourism aspects of heritage development, as they are essential factors in the spatial and regional dynamics of mountain areas.

Keywords: mountain road, heritage status development, modeling, long-term interpretative models, transportation and regions, Alps, Andes, Himalayas.
INTRODUCTION

Roads as heritage objects: the interaction between mountain landscapes and society’s vision of the mountains

The purpose of this paper is to study mountain roads as heritage objects and to present a typology of the long-term dynamics of heritage status development. The four main categories of this typology are illustrated by examples, mostly from the Alps (Europe), the Himalayas and the Andes.

Over the years, the term “heritage” has been used with a wide range of meanings and connotations (Beghain, 1999); however, the drafting of UNESCO’s World Cultural and Natural Heritage Convention (1972) has led to a certain consensus being forged, albeit one that is heavily influenced by the organization’s western roots. The sites of “exceptional universal value” designated under this convention include a number of roads, such as the “Routes of Santiago de Compostela” (France, inscribed in 1998), “Sacred Sites and Pilgrimage Routes in the Kii Mountain Range” (Japan, 2004), the “Quebrada de Humahuaca” (Argentina, 2003), the “Incense Route - Desert Cities in the Negev” (Israel, 2005) and the “Semmering Railway” (Austria, 1998). Most of these roads are in what are referred to as “mountain areas”, although the study of mountain roads as heritage objects leads us to question and/or redefine this concept (Debarbieux, 1989, 2001; Sacareau, 2003).

In mountainous terrain, road building is constrained by the morphology of the landscape, although the spatial and territorial distributions of road systems are also determined by when and where they were built. For example, until the 19th-century roads, in the European Alps tended to follow the flanks of the mountains. A historic change took place in the 20th-century as road building started to focus more on the valley floors (Bernier, 2004, 2005). This effect was particularly noticeable with the development of major highways to supplement the traditional road system. As a result, the Alps are crisscrossed by a network of secondary roads, many of which have taken on new functions. The layout of these roads was determined by local topography and climate, with ramps, bridges and tunnels being required to overcome particularly difficult obstacles. Many of these structures are impressive feats of engineering and thus potential heritage objects.

As a first stage in characterizing a road as a heritage object we must bring together the four dynamics involved in the heritage development process (Figure 1).

![Figure 1 – The heritage status of mountain roads: a complex dynamic model](image-url)
Mountain roads can become heritage objects for their physical characteristics (layout and number of switchbacks, gradient, vertiginous nature, etc), or for the activities associated with them (often traditional, for example, agriculture, forestry or pilgrimages, and potentially exploitable as tourism development tools). This parameter is plotted on the right-hand axis of the diagram in Figure 1.

However, a road’s primary function, in practical and in heritage terms, may also change with time. Whether a road has retained its original function, or whether it has taken on a new function for new users is shown on the left-hand axis of the diagram (Figure 1). For example, the “Silk Road”, a network of trade routes between Asia and Europe (from Chang’an, modern-day Xian, in China to Antioch), gets its name from the precious Chinese merchandise that was transported along it (the term “Silk Road” was first used in the 19th-century by a German geographer, Ferdinand von Richthofen.) Founded as a trade route in the 3rd-century BC, the Silk Road was actively used until the 16th-century but now its commercial function is only of interest to historians and tourists.

The Silk Road is an excellent example of a heritage object with an international outreach; however, a road’s heritage status can be high or low and its importance may be regional, national or international (Graham, Ashworth & Tunbridge, 2000). Developing a road’s heritage status may involve a wide range of complex tools, including the setting up of conservation areas and protection measures backed by strict legislation. The intensity of heritage status development and the number and complexity of the heritage development tools employed are shown on the upper and lower axes of the model. There is often a strong correlation between these two variables.

Thus, plotting the four variables shown in Figure 1 for any time T provides a general indication of a road’s heritage status (point P) at that time. The patterns produced by plotting the status of roads at different times in their history can then be used to construct a typology of mountain road heritage development.

However, before presenting such a typology, and in order to provide a better understanding of the ways in which mountain roads are currently integrated into regional and tourism development projects, it is instructive to look at the main historical processes of heritage development through a number of enlightening examples.

LONG-TERM HISTORICAL APPROACH TO THE FUNCTIONS OF MOUNTAIN ROAD HERITAGE

By definition, a mountain road’s heritage status will evolve over time through socio-cultural processes of appropriation and the development of a local identity (Di Meo, 1994; Halbwachs, 1994). At first, this heritage status is most frequently linked to the road’s “primary” historical function, which was generally to overcome a geographical obstacle. Thus, many old routes across the Alps have been catalogued for their historical interest (Guichonnet, 1980, Schnekenburger, 2002), including the Roman roads described in ancient documents. One of the most important early maps is the Peutinger Table, a 13th-century reproduction of an old Roman map that covers the entire Roman Empire and beyond, as far as China. As the first attempt to depict an entire road network (it maps almost 200,000km of roads!), it can be considered the ancestor of modern road maps. Segments three and four of the Table, which has 11 segments in total, depict the Alps, showing seven major routes over seven high passes: “in Alpe Maritima” (Col de Tende-La Turbie), “in Alpe Cotia” (Montgenèvre), “in Alpe Graia” (Petit Saint-Bernard), “in Summo Pennino” (Grand Saint-Bernard), Cunia (St-Gothard), Cunuaureu (Splügen) and “in Alpe Julia” (Pero Pass). Despite the Table’s checkered history, over the centuries it has played an important role in defining Europe’s view of geography. It could even be considered a piece of utilitarian heritage connected with crossing the mountains. The Peutinger Table is a functional document that has helped increase the heritage status of these roads long after the Roman period.
During this same period, the Greek historian Polybus (2nd-century BC) and the Roman historian Titus-Levy (59BC to 17AD) planted the seeds for an even more original example of heritage development. In 218BC, Hannibal, a Carthaginian general at war with Rome, led his army from Africa and across Europe, most famously taking his 60,000 men and about 40 elephants across the Alps. Both Polybus and Titus-Levy recorded Hannibal’s feats, thereby introducing the Ancient World to the Alps, a region that was almost completely unknown at the time. However, neither of their accounts provides a detailed description of Hannibal’s route, making it impossible to conclusively identify the passes Hannibal crossed. The glorious tales of Polybus and Titus-Levy and the uncertainties surrounding Hannibal’s epic journey have greatly increased the legendary status of the route; so much so that several Alpine valleys claim to be Hannibal’s point of passage, although the evidence on which these claims are based is often very flimsy (for example, “goes past a white rock”). In France, the Maurienne Valley and the Queyras both claim to have been the scene of Hannibal’s crossing and have raised monuments to this effect! Despite, or perhaps because of this uncertainty, Hannibal’s route has developed a rather exceptional heritage status.

Passages across the Alps, particularly the Grand Saint-Bernard Pass and, further east, the Saint-Gothard Pass, remained important throughout the Middle Ages and the Renaissance. This was a period of flourishing trade between Northern Italy and Northern Europe (fairs in Champagne and Flanders starting in 12th-century). However, roads that were built for trade and cultural exchanges were also of great military importance, most notably for Charles VIII, François Premier, and Napoleon, who famously demanded: “roads fit for canons”. These strategic routes included the roads over the Simplon Pass (linking Paris to Milan), Mont-Cenis Pass (between Lyon and Turin) and Lautaret Pass (linking up to Montgenèvre via the Infernet gallery, built in 1807 and the first true road tunnel in the French Alps). Although they were expensive to maintain, the economic importance of these mountain roads justified the cost. In many ways, the heritage status of these roads survived their changes of function; however, the building of the main trans-alpine rail tunnels, such as the Fréjus (between France and Italy, opened in 1871), substantially reduced road traffic across the Alps and redefined the ways in which people appropriated mountain roads.

In addition to the work of historians and the building of monuments, this primary or original heritage is sometimes reactivated in original ways. An outstanding example is the innovative project that forms part of the bid to inscribe Qhapaq Ñan, or the “Main Andean Road” as a UNESCO world heritage site. This is a unique and pioneering heritage development project, partly because the process involves regional cooperation between several countries: Argentina, Bolivia, Chile, Colombia, Ecuador and Peru. The common cultural heritage under consideration is a network of more than 23,000km of pre-Inca and Inca roads. Sometimes called the “Backbone of the Sierra”, it connected production centers to administrative and ceremonial centers. Qhapaq Ñan played a fundamental role in unifying the Inca Empire by enabling the Incas to exercise effective commercial, political, administrative, strategic and military control over an immense region. The UNESCO bid explains the site’s importance very clearly: It is a mega-unit of universal value, a great multinational system… The enormous typological variety of scales, techniques, finishes and layout, borders, construction forms and materials are again evidence of technically flawless construction skills. The Incas of Cuzco achieved this unique infrastructure with a unitary character in less than a century, making it functionally coherent and establishing additional centers for commerce, exchange, production and worship...

However, Qhapaq Ñan was also a communication route, which permitted the dissemination and maturity of regional cultures and the appropriation of shared cultural values, owing to the expansion of languages such as Quechua and Aymara and the concomitant spread of culture and world views. The Road also expressed these peoples’ harmonious relations with and adaptation to the complex Andean nature. Today, the cultural landscapes of Qhapaq Ñan form an exceptional setting in which
Living Andean cultures continue to convey a universal message: the human ability to turn one of the harshest geographical contexts of the American continent into an environment for life.” Thus, the current heritage development of this road is founded on the political desire to return to the roots of transnational regional values.

Figure 2 – The stages in developing the heritage status of mountain roads: situations that may evolve to a greater or lesser extent
Figures 1 and 2 can be used as keys for interpreting the processes of heritage status development over several time steps. Thus, it is possible to model how the global characteristics of heritage status development evolve and visualize “heritage-development trajectories”.

Today, the heritage behind many mountain roads has been appropriated to serve the needs of tourism development.

**MOUNTAIN ROADS AS VECTORS FOR PROMOTING REGIONAL AND TOURISM DEVELOPMENT**

The sinuous and often vertiginous nature of mountain roads is generally a result of local topography, geomorphology and/or climatic conditions; however, these physical characteristics may be enough in themselves to justify a road’s status as a heritage object. The accompanying tourism development will be even greater if the road includes impressive civil engineering structures (for example, the spectacular new viaduct near Millau in the Massif Central, France).

Mountain roads can vaunt their extreme sinuosity in order to enhance their heritage status, in the same way as Lombard Street has done in the urban environment of San Francisco (California – USA). Many panoramic mountain roads have become major tourist attractions, including the famous Großglockner-Hochalpen-straße in the Austrian Tyrol. Built between 1930 and 1935, it follows a trade route between Germany and Italy that has been very important since the Middle Ages. Today, this toll road across the Hohe Tauern National Park, with its breath-taking views of the Grossglockner and the Pasterze Glacier, has become extremely popular with summer tourists: there has been a “heritage slide” from trade to tourism. The tourism vocation of many other mountain roads is expressed in their incorporation into themed tourist trails, such as wine trails.

Examples of tourism development that are more clearly connected to a road’s physical characteristics include the “Road of 400 bends” on the island of Reunion (Indian Ocean), and Alpe d’Huez (French Alps). The road to Alpe d’Huez was built in the 1930s to serve the ski resort; however, the 14-km long road, with its 21 switchbacks and average gradient of 8% (maximum 12%), owes its fame to the Tour de France cycle race. Markers installed to guide snowplows have been used to number each of the bends, which have also been named after winners of this stage of the race. Greg LeMond, the American cyclist, refers to Alpe d’Huez as follows: “Every sport has its sacred places: for soccer it is the Maracana, in ski-jumping it is Holmenkollen. For cyclists, the temple is Alpe d’Huez”. The association with cycling is so strong that the road has become an important promotional tool for the resort (see photo) and a system has been installed so amateur cyclists can time their ascent and claim a commemorative certificate from the tourist office. In this case, the opening of the road to mass tourism has created strong associations in the public imagination (Amirou, 1995, 2000) and produced another example of “heritage slide”, both in terms of the road’s function and in terms of the parties involved with the road.

Cyclists are not the only sportspeople to have appropriated mountain roads; motor sports enthusiasts have also developed strong links with certain roads. The Corsica, Monte-Carlo and New-Zealand Rallies gain a large part of their prestige from the ruggedness of the roads the drivers must negotiate. This sporting appropriation was almost immediate in the case of the world’s greatest hill climb, “The Pikes Peak Hill Climb” (Colorado – USA), as the first event was held in 1916, only a year after the road opened. The 19.93-km “Race to the Clouds” starts at 2865m and competitors have to negotiate 156 bends to reach the finish, 1400m higher.

Mountain roads may also be used for commemorations. For example, the Louis Chevrolet Event (LCE), a vintage car rally over the vertiginous slopes between Chaux-de-Fonds and Grindelwald (including the very steep Gurnigel Pass, 1750m) in the Swiss Alps, was set up as a homage to the
car manufacturer Louis-Joseph Chevrolet (born in Chaux-de-Fonds in 1878, he left to conquer America in 1900). For the 10th edition in 2006, the rally applied for permission to use private roads so it could take in the famous “Romantic Route Express” (Andermatt – Furka Pass - Gletsch - Grimsel Pass – Meiringen - Grosse Scheidegg - Grindelwald). This is another good example of road heritage with several dimensions: local, Swiss, Alpine, American and even worldwide, given the fame of the Chevrolet brand. In fact, as well as paying homage to Chevrolet, the 10th LCE allowed the local population to promote other aspects of their heritage. The event, the fame of Chevrolet, and the history and the landscape surrounding the road all interact to “produce a heritage”. The ways in which such a heritage evolves (Figures 1 and 2) are becoming more and more complex, and roads increasingly focus and crystallize a region’s identity. Mental associations play an essential role in this process (Bailly, 1986).

At this stage in the study, it became clear that heritage status development processes could be described according to a typology containing four major categories.

### ATYPOL OGY FOR THE LONG-TERM DYNAMICS OF MOUNTAIN ROAD HERITAGE STATUS DEVELOPMENT

Figures 3 and 4 can be used to highlight the dominant situations over the long term, even if the boundaries between one type and other are often fuzzy and variable.

Type A includes situations in which the heritage status, whatever it may be, is stable. In this case, there is no real heritage-development trajectory as there has been, and continues to be, little change in the heritage characteristics of the road. The Route des Grandes Alps, between Thonon and Menthon (France), provides a good example of a type-A situation. This major tourist route was set up as a way of collecting “road summits” along a mountain itinerary. The Touring Club de France, which was founded in 1882 to develop bicycling tourism, first mooted the idea in 1911, but the route was not completed until 1937 when the road over the Iseran Pass (Savoie) was inaugurated by French President Lebrun. Its objective was to “open up tourist access to all the magnificence of the Alps”. The first tourist vehicles to follow the route were charabancs - open-topped buses with bench seats from which passengers could marvel at the superb views - and coaches. The original 684-km route over sixteen mountain passes (total height gain of 10,675 meters) was not completed until several
Figure 3 – Interpretative grid for the dynamics of heritage status development over the long term.
**Figure 4 – Typology of the long-term dynamics of the development of the heritage status of mountain roads**

**Type A:** Stable heritage status

**Type B1:** Reduction or increase in the intensity of heritage status development with no effect on the heritage characteristics

**Type B2:** Redefinition of the heritage characteristics with no change in the level of heritage status

**Type C:** Passage from a balanced or moderate heritage situation to more of a Type-D heritage situation

**Type D:** Evolution towards exaggerated heritage characteristics

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Type B1: Reduction or increase in the intensity of heritage status development with no effect on the heritage characteristics

Type B2: Redefinition of the heritage characteristics with no change in the level of heritage status

Type C: Passage from a balanced or moderate heritage situation to more of a Type-D heritage situation

Type D: Evolution towards exaggerated heritage characteristics

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**Figure 4 – Typology of the long-term dynamics of the heritage status development of mountain roads.**
new mountain roads had been built. In recent years, four variations have been added to the original route, including the road over the Cime de la Bonette: the highest paved road in Europe. However, the route’s primary tourist function remains the same, especially for summer motorists and cyclists, and the heritage characteristics of the route have changed little over the years. There is a perfect continuity between past and present (Gotman, 1990).

Type B comprises situations in which evolution is homogenous. It has been divided into two sub-categories. Type B1 covers situations in which the intensity of the heritage status development increases or decreases but the characteristics of the heritage remain constant. This is the case for Gothard in Switzerland, where heritage status development has intensified. As a key crossing point between Northern and Southern Europe, many of the area’s historic structures have become heritage objects (Pigeon, 2004): the hospice at the pass (2108m), several old bridges, including the famous Devil’s Bridge, remains of fortifications, galleries, military buildings and an old road, called La Tremola (“the Trembler”), which is closed to cars despite being almost completely paved. There are abundant plaques and information boards reminding visitors of the role the Gothard area played in forming the first confederation of Swiss Cantons at the end of the 13th-century: emboldened by the revenues collected from travelers crossing the pass, the local population decided to free themselves from the tutelage of the Habsburgs. The area’s heritage status has been further developed through the construction of new buildings at the pass (museum, hotel, restaurant, souvenir shop, etc). Gothard continues to be an important passage across the Alps, due to its rail and road tunnels (opened in 1882 and 1980, respectively), and its role as a transit point will soon be reinforced by the construction of a valley-level railway tunnel. When it is completed in 2015 (projection to time t+1 in Figure 2), the 57-km long tunnel from Erstfeld (Uri) to Bodio (Tessin) will be the longest in the world. The tunnel includes a regional project aimed at ensuring the local area is not simply by-passed: the construction of an underground station, called Porta Alpina, that will be linked to Sedrun (Surselva), on the surface, by an 800-meter high elevator. This “Alpine Doorway” has been given political form in the shape of the “Gothard Region Project” (“Raumkonzept Gotthard”). This is a case of a heritage route with coherent characteristics that is starting to adopt more complex heritage development tools and increasing its level of heritage development.

Type B2 contains situations in which the character of the heritage status changes but the intensity of heritage development remains constant. For example, despite following a very ancient trans-Himalayan route, the new road from Khatmandhu (Nepal) to Lhasa (Tibet – China), opened in 1952, shows only modest evidence of heritage development (Bernier, 1996). Heritage status development has not gone much further than the “Friendship Bridge” at the border and the thermal springs at Tatopani (literally “hot waters”), which have become an essential stopping-off point for travelers. However, this route through the famous Bhote Kosi Valley is now much more than a trade route. As the only road through the Nepalese Himalayas suitable for motor vehicles, it reinforces Nepal’s status as a buffer state, and the road is often closed for political reasons: a clear demonstration of its geostrategic importance.

Type C is defined by the transition from a balanced or moderate heritage position towards a type-D heritage situation. It can be considered a transitional heritage-development trajectory. The Simplon Pass (2008m) provides a good illustration of this category. It is an important trans-Alpine axis (Bavoux, 1992) that has long been worthy of superlatives: the road over the pass, close to Brig (Switzerland) and to Domodossola (Italy), was built between 1801 and 1806, and the railway tunnel, built at an altitude of only 900m and inaugurated in 1906, was for a long time the most modern in Europe and the longest in the world. Today, these two structures are discretely being turned into heritage objects through maintenance work, the provision of information about the old roads over the pass, and by the development of a number of tourism projects, such as the “Napoleon Route
Express”. This road tour, provided by the Swiss post-bus company, CarPostal, runs under the slogan: “Follow Napoleon’s footsteps and experience an unforgettable Postbus journey from the charming mountain village of Domodossola to the Allalin Glacier in the canton of Valais”. In May 2006, a commemoration ceremony was held to mark the tunnel’s one-hundredth anniversary.

Type D covers situations in which there is an evolution towards exaggerated heritage characteristics (that is to say, towards the corners of the heritage grid or plane). The “Routes du vertiges” in the Vercors Mountains (France) provide a good illustration of this type of evolution. Evocatively described in the region’s tourist brochures, the building of these roads was an important event in local history and a source of local pride. In this respect, they can be likened to the role the Vercors played in the Resistance during the Second World War. Here we have an example of the “production of symbolic places” (Micoud, 1991, Lazzarotti, 2001). Built during the second half of the 19th-century, using extremely rudimentary tools, the primary role of these spectacular roads was to open up the area to the outside world. Consequently, they were sized to meet the needs of the forestry vehicles that would carry wood from the area to outside markets. Although the roads through the Bournes Gorge and the Grands Goulets are marvels of 19th-century engineering, their initial purpose was entirely practical. However, they were very quickly appropriated as a tool for developing tourism in the Vercors Regional Park. In recent years, major refurbishment work has been carried out to improve safety for the ever-increasing tourist traffic. For example, at the Arbois Tunnel, the road has been moved back from the edge of the cliff, thereby restricting the views of one of the area’s most spectacular landscapes: the need to provide a safe road for tourists is taming the spectacle that initially attracted these visitors. The tourism value of heritage objects, which in the case of the “Routes du vertige” are important to the image of the Vercors Regional Park, can be significantly reduced by modernization. Thus, the contours of a heritage object can be redefined by complex and paradoxical processes (Babelon & Chastel, 2000) that may lead to it regaining its original purpose or to its increased appropriation by tourism (rightwards to the top or bottom corners in Figure 1). This type of heritage-development trajectory generally leads to the emergence of increasingly specific situations.

CONCLUSION
Towards increasingly complex heritage constructions and the formation of networks.

The processes governing the evolution of the heritage status of mountain roads are extremely complex. Sometimes, they even participate in creating what some researchers call “heritage allegories” (Choay, 1992). This study of the long-term and current evolution of these processes shows that mountain roads can become heritage objects for a number of different reasons, not just as monuments to a region’s history, and that they may have very modern attributes (Poulot, 1998, Gravari-Barbas, Violier, 2003). A mountain road’s heritage status will be built upon its historical importance, the beauty of the landscape, and a more or less complex corpus of heritage development tools. However, such heritage objects can also help redefine social links.

Today, attempts are being made to refurbish the principles and methods on which mountain road heritage development is based (Guillaume, 1990). In many ways, the heritage of mountain roads is continually being reinvented. Increasingly, heritage status development involves international or intra-national cooperation, as in the cases of the Qhapaq Ñan World Heritage project and the Swiss Travel System’s development of all-in-one tickets to centralize the sale of access to several itineraries.
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